

I Claim:

1. An optical fiber for transporting a beam of light from a laser light source and projecting the beam of light towards a target in an even illumination pattern, comprising:

an input end for receiving the beam of light; and

an exit end for projecting the beam of light towards the target,

wherein the exit end has at least one diffractive optical pattern formed thereon.
2. The optical fiber as described in claim 1, wherein the diffractive optical pattern is formed by one of the group selected from etching, molding and cutting.
3. The optical fiber as described in claim 1, wherein the diffractive optical pattern is one of a binary or multi-level diffractive pattern.
4. The optical fiber as described in claim 1, wherein the diffractive optical pattern is a continuous diffractive pattern.
5. The optical fiber as described in claim 1, wherein the exit end has a plurality of optical diffractive patterns incorporated thereon.
6. The optical fiber as described in claim 1, wherein the optical fiber is coupled to a laser emitting diode at the input end.
7. A system for recording images using a camera, comprising:

at least one laser emitting diode; and

at least one fiber optic coupled to a respective laser emitting diode at an input end thereof having an exit end with a diffractive optical pattern formed thereon,

wherein laser light emitted from each laser emitting diode travels through a respective fiber optic and is projected onto a target after passing through the diffractive optical pattern to illuminate a portion of the target for recording images of the target.

8. The system as described in claim 7, wherein the diffractive optical pattern creates a rectangular illumination pattern on the target.

9. The system as described in claim 7, wherein the system comprises a plurality of laser emitting diodes and a respective plurality of fiber optics.

10. The system as described in claim 9, wherein the exit ends of the fiber optics are arranged in a circular fashion around the camera.

11. The optical fiber as described in claim 7, wherein the diffractive optical pattern is formed by one of the group selected from etching, molding and cutting.

12. The optical fiber as described in claim 7, wherein the diffractive optical pattern is one of a binary or multi-level diffractive pattern.

13. The optical fiber as described in claim 7, wherein the diffractive optical pattern is a continuous diffractive pattern.

14. The optical fiber as described in claim 7, wherein there are a plurality of optical diffractive patterns on the exit end of each fiber optic.